BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
	)	
	)	

To: The Commission

REPLY COMMENTS OF ENTERGY SERVICES, INC.

By:

Shirley S. Fujimoto
David D. Rines
McDERMOTT WILL & EMERY LLP
600 Thirteenth Street, N.W.
Washington, D.C. 20005-3096
T: 202.756.8000
F: 202.756.8087

Attorneys for Entergy Services, Inc.

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EXECUTIVE SUMMARY

Congress and the Administration have made energy independence, efficiency, and reliability a national priority. Therefore, as part of its national broadband plan, the Commission should consider the needs of utilities and other critical infrastructure entities for access to sufficient, dedicated spectrum for the communications systems that support their critical operations and enable the provision of safe, reliable, and efficient electricity and energy services to the public.

As a major supplier of electric power to 2.7 million utility customers in the hurricane-prone Gulf Coast region, Entergy requires access to sufficient dedicated spectrum that provides the levels of capacity and coverage necessary during large-scale emergencies and storm recovery efforts to enable critical electric power to be restored to the public as quickly and as safely as possible. Entergy also relies heavily on wireless communications to support essential functions of its electric utility operations, such as voice communications with line and field crews and remote monitoring and control of its electric grid. Entergy also requires reliable, secure communications to ensure that its systems are continually operating in compliance with mandatory federal reliability standards.

Given its reliance on wireless communications using the limited dedicated spectrum currently available to utilities, Entergy is concerned by the number of commenters in this proceeding who urge the Commission to conduct a "spectrum inventory" to identify and reallocate lower-band spectrum (*i.e.*, below 3.5 GHz) for commercial wireless broadband services while ignoring the needs of other spectrum users such as utilities and critical infrastructure industries. Entergy therefore joins with Southern Company Services, Inc. in urging the Commission to exclude from its examination those bands that are currently used to

support utility and critical infrastructure industry ("CII") operations, and furthermore urges the Commission to take whatever measures are necessary to ensure that existing utility/CII spectrum allocations are maintained and protected.

Entergy also supports Southern's recommendation that the Commission expand the purpose of its inventory to also identify spectrum bands that may be suitable for wireless services other than just commercial wireless broadband. Even the small amounts of dedicated spectrum currently available to utilities are being rendered less and less usable for any application other than narrowband voice – existing channels in the VHF and UHF bands are being reduced from 25 kHz to 12.5 kHz, and will soon be reduced even further. While Entergy believes that relationships with commercial broadband providers will be an important aspect of smart grid deployment and operations, utilities cannot rely on commercial providers for certain critical smart grid and communications needs due to issues such as security, reliability, traffic prioritization, and control of the utility communications system. Accordingly, Entergy urges the Commission to coordinate its efforts with the Department of Energy and other federal agencies and energy regulators to identify additional dedicated spectrum that can be made available for utility and CII as part of its development of a national broadband plan.

Finally, the Commission should give careful consideration to the cybersecurity issues that arise from the introduction of third parties, such as commercial service providers, into the communications systems relied on by utilities and other critical infrastructure industries. This is yet another area where the Commission should coordinate its efforts with those of other federal agencies, with the ultimate goal of producing one set of consistent standards.

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To: The Commission

REPLY COMMENTS OF ENTERGY SERVICES, INC.

Entergy Services, Inc. ("Entergy"), on behalf of itself and its operating affiliates, hereby submits its reply comments in response to the Federal Communications Commission's *Notice of Inquiry* on the development of a national broadband plan for our country.[1]

Entergy Services, Inc. is a wholly-owned subsidiary service company of Entergy Corporation, an integrated energy company engaged primarily in electric power production and retail distribution operations. Through its subsidiaries, Entergy Corporation owns and operates power plants with approximately 30,000 megawatts of electric generating capacity, is the second-largest nuclear generator in the United States, and delivers electricity to 2.7 million utility customers in Arkansas, Louisiana, Mississippi, and Texas.[2]

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[1] / *A National Broadband Plan for Our Future*, GN Docket No. 09-51, Notice of Inquiry, FCC 09-31 (rel. April 8, 2009) ("*NOI*"). On June 25, 2009, the Commission extended the deadline for filing reply comments in this proceeding until July 21, 2009. *A National Broadband Plan for Our Future*, GN Docket No. 09-51, Order, DA 09-1420 (rel. June 25, 2009).

[2] / Entergy Arkansas, Inc. ("EAI"), Entergy Gulf States Louisiana, LLC ("EGSL"), Entergy Louisiana, LLC ("ELL"), Entergy Mississippi, Inc. ("EMI"), Entergy New Orleans, Inc. ("ENO"), and Entergy Texas, Inc. ("ETI") comprise the six electric public utility Operating Company members of the Entergy System.

I. THE NATIONAL BROADBAND PLAN IS PART OF A BROADER NATIONAL POLICY EFFORT

Entergy agrees with Southern Company Services, Inc. ("Southern") that the national broadband plan should not and cannot be developed in isolation, but "should be viewed and developed as one of many interrelated components of a broader national public policy effort consisting of several objectives across a wide array of interests and issues."[3]

As the Utilities Telecom Council and the Edison Electric Institute ("UTC/EEI") and Southern have stated, Congress and the Administration have made energy independence, efficiency, and reliability a national priority, as evidenced by the Energy Policy Act of 2005,[4] the Energy Independence and Security Act of 2007,[5] and the energy provisions of the American Recovery and Reinvestment Act of 2009.[6] For example, electric utilities are now subject to mandatory reliability standards adopted and enforced by the Federal Energy Regulatory Commission ("FERC") and the North American Electric Reliability Corporation ("NERC"). Among other requirements, these standards require electric utilities to have reliable communications for operational control and management of the grid. In addition, Title XIII of the Energy Independence and Security Act authorized funding for smart grid demonstration and investment grant programs as part of an effort to improve electric systems' efficiency and reliability.

Congress and the Administration recently reaffirmed their commitment to the implementation of smart grid and other energy efficiency initiatives through the energy

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[3] / Comments of Southern at 2 – 3.

[4] / Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005).

[5] / Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (2007).

[6] / American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009) ("Recovery Act").

provisions of the Recovery Act, which also explicitly directs the Commission to include in its national broadband plan "a plan for the use of broadband infrastructure and services in advancing" public policy goals such as energy independence and efficiency.[7]

Most recently, the House of Representatives passed the American Clean Energy and Security Act of 2009 (H.R. 2454). This bill, which has now been placed on the Senate Calendar, includes a subtitle explicitly intended to encourage the further expansion of smart grid infrastructure and technologies.[8]

Overall, these various actions and initiatives demonstrate that energy independence and efficiency is a significant part of what Southern called "the 'big picture' for America's future."[9] Therefore, as part of its national broadband plan, the Commission should consider the needs of utilities and other critical infrastructure entities for access to sufficient, dedicated spectrum for the communications systems that support their critical operations and enable the provision of safe, reliable, and efficient electricity and energy services to the public.

Specifically, as discussed below, the Commission should (i) maintain and protect existing spectrum allocations that utilities and critical infrastructure industries ("CII") rely on; and (ii) make additional dedicated spectrum available for utility and CII communications needs, including smart grid and other broadband applications that will be necessary to ensure the continuing safety, efficiency, and reliability of the nation's electric and other critical infrastructure.

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[7] / Recovery Act § 6001(k)(2)(D).

[8] / H.R. 2454, 111th Congress, Subtitle E ("Smart Grid Advancement").

[9] / Comments of Southern at 3.

II. THE COMMISSION MUST ENSURE THE CONTINUED AVAILABILITY OF SPECTRUM FOR UTILITIES AND CRITICAL INFRASTRUCTURE INDUSTRIES

As UTC/EEI, Southern, the National Rural Electric Cooperative Association ("NRECA"), and the American Petroleum Institute ("API") explained in their initial comments in this proceeding, utilities rely on a number of different wireless applications and services in support of their critical operations, such as private land mobile radio systems, supervisory control and data acquisition ("SCADA") systems, and other applications necessary to ensure the safe, reliable, and efficient delivery of electric power.[10]

As a major supplier of electric power to 2.7 million utility customers in the hurricane-prone Gulf Coast region, Entergy requires access to sufficient dedicated spectrum that provides the levels of capacity and coverage necessary during large-scale emergencies and storm recovery efforts to enable critical electric power to be restored to the public as quickly and as safely as possible. Entergy also relies heavily on wireless communications to support essential functions of its electric utility operations, such as voice communications with line and field crews and remote monitoring and control of its electric grid. Entergy also requires reliable, secure communications to ensure that its systems are continually operating in compliance with mandatory reliability standards adopted and enforced by FERC and NERC, including NERC's Critical Infrastructure Protection ("CIP") cybersecurity standards.

Given its reliance on wireless communications using the limited dedicated spectrum currently available to utilities and CII, Entergy is concerned by the number of commenters in this proceeding who urge the Commission to conduct a "spectrum inventory" to identify and

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[10] / *See* Comments of the Utilities Telecom Council and the Edison Electric Institute ("UTC/EEI") at 8; Comments of Southern at 5 – 6; Comments of the National Rural Electric Cooperative Association ("NRECA") at 13; Comments of the American Petroleum Institute ("API") at 3.

reallocate lower-band spectrum (*i.e.*, below 3.5 GHz) for commercial wireless broadband services while ignoring the needs of other spectrum users such as utilities and CII. Entergy agrees with Southern that "[t]he impact that the loss of these critical bands would have on utility and CII operations and on the services they provide to the public far outweighs any benefits that might be recognized by reallocating these bands for commercial broadband service."[11]

Although Entergy agrees that a spectrum inventory would be very useful in providing guidance on how our nation's spectrum policies can be improved, Entergy also agrees with Southern that any such inventory must take into account the needs of *all* spectrum users.[12] Entergy therefore supports Southern's recommendation that the Commission expand the purpose of its inventory to also identify spectrum bands that may be suitable for wireless services other than just wireless broadband.[13]

Entergy also joins with Southern in urging the Commission to exclude from its examination those bands that are currently used to support critical utility and CII operations,[14] and furthermore urges the Commission to take whatever measures are necessary to ensure that existing utility/CII spectrum allocations are maintained and protected. For example, various commenters have urged the Commission to open up as many bands as possible, including licensed bands, for shared use on an "opportunistic" basis using cognitive radios or other "dynamic" protocols.[15] However, cognitive radios and other new "opportunistic" technologies are not yet sufficiently proven or sufficiently reliable to allow them to be used in areas and

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[11] / Comments of Southern at 7 – 8.

[12] / *Id.* at 7.

[13] / *Id.*

[14] / *Id.*

[15] / Comments of the New America Foundation; *See also* Comments of Microsoft at 9; Comments of Dell at 12.

frequency bands where they could compromise critical utility communications. As UTC/EEI pointed out, utility communications systems must work twenty-four hours a day, seven days a week, 365 days a year at a standard of reliability of 99.999 percent to meet America's "everyday" needs.[16] Therefore, the Commission should not consider any bands used by utilities and CII for possible shared or "opportunistic" use.

Commercial interests are also calling for more spectrum to be reallocated and sold to them at auction. In particular, T-Mobile and the Consumer Electronics Association argue that the results of any spectrum inventory should be used to allocate and auction an additional 200 MHz of spectrum below 3.5 GHz for commercial mobile broadband use, including 100 MHz of spectrum regulated by the Commission[17] – *i.e.*, non-government spectrum that has not already been reallocated to commercial service providers.

However, these commenters ignore the fact that – from a public interest standpoint – commercial service may not be the best use of this spectrum. In its June 29, 2009 report to Congress, the Congressional Research Service stated:

> Auctioning spectrum licenses may direct assets to end-use customers instead of providing wireless services where the consumer may be the beneficiary but not the customer. The role of wireless communications to support a smart grid has been briefly noted in this report. Spectrum resources are also needed for railroad safety, for water conservation, for the safe maintenance of critical infrastructure industries, and for many applications that may not have an immediate commercial value but can provide long-lasting value to society as a whole.[18]

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[16] / Utilities Telecom Council, *The Utility Spectrum Crisis: A Critical Need to Enable Smart Grids*, January 2009, at 9 ("UTC Spectrum Report").

[17] / Comments of T-Mobile at 17; Comments of the Consumer Electronics Association at 7 – 8.

[18] / Linda K. Moore, *Spectrum Policy in the Age of Broadband: Issues for Congress*, CRS Report for Congress at 13 (2009).

Thus, as the Congressional Research Service has observed, the allocation of spectrum to utilities and CII may in some cases be more valuable to the public and to society than allocation for commercial services.

Finally, Entergy agrees with Southern and UTC/EEI that the Commission should evaluate the "use" of spectrum according to the purpose for which it is used, not merely the amount that is used.[19] As UTC/EEI and Southern explained, utility and CII spectrum must be instantaneously available at any time to handle large amounts of traffic on an urgent basis,[20] and any determination or definition regarding the use of utility and CII spectrum "must therefore be based on peak usage levels during times of emergency and not on any estimates of average or continuous usage levels."[21]

III. ADDITIONAL SPECTRUM MUST BE MADE AVAILABLE TO CRITICAL INFRASTRUCTURE INDUSTRIES

As the Commission looks to ways to improve access to spectrum for wireless broadband, Entergy agrees with those commenters who urge the Commission to make additional spectrum available for utilities and other critical infrastructure industries, particularly in light of the new demands being placed on them by many of the same policies and mandates that are driving the efforts to expand broadband deployment.[22]

Utilities and CII currently rely on spectrum bands that are increasingly congested and scarce, and most, if not all, of these allocations are inadequate to accommodate the broadband services and applications that utility operations increasingly demand. As Motorola pointed out,

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[19] / Comments of Southern at 9 – 12; See also Comments of UTC/EEI at 9, note 13.

[20] / UTC Spectrum Report at 20; Comments of Southern at 12.

[21] / Comments of Southern at 12.

[22] / Comments of Southern at 13; Comments of NRECA at 11 – 13; Comments of API at 4 – 7; Comments of the Enterprise Wireless Alliance ("EWA"); Comments of Motorola at 8 – 9.

"Only about 30 MHz of spectrum across multiple frequency bands is available for internal use by enterprise operations and critical infrastructure users outside the public safety category."[23] The Enterprise Wireless Alliance ("EWA") further pointed out that this 30 MHz of spectrum is used not just by utilities and CII, but by hundreds of thousand of large and small enterprises in a variety of business sectors.[24] According to Motorola, "Enterprise business and critical infrastructure entities will be relegated to internal communications systems that provide only voice and low speed data unless the Commission acts to provide additional spectrum."[25]

Even the small amounts of dedicated spectrum currently available to utilities are being rendered less and less usable for any application other than narrowband voice. Existing channels in the VHF and UHF bands are being reduced from 25 kHz to 12.5 kHz, and will soon be reduced even further. In addition, a petition was recently filed with the Commission urging "narrowbanding" in the 800 MHz band, even though the loss of the current 25 kHz channels in this band would effectively cripple the ability of utilities to use this band to support any smart grid applications.[26]

Unlicensed spectrum is also unsuitable for supporting critical utility operations. As UTC/EEI stated, "unlicensed spectrum systems have their own issues with reliability, due to inherent concerns with interference and congestion." A report recently released by the National Institute of Standards and Technology ("NIST") also concluded that smart grid device

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[23] / Comments of Motorola at 8.

[24] / Comments of EWA at 3.

[25] / Comments of Motorola at 9.

[26] / Enterprise Wireless Alliance Petition for Rulemaking, filed April 29, 2009.

manufacturers "struggle with communication interference issues with other devices in unlicensed radio spectrums."[27]

Accordingly, Entergy urges the Commission to coordinate its efforts with the Department of Energy and other federal agencies and energy regulators to identify additional dedicated spectrum that can be made available for utility and CII as part of its development of a national broadband plan. The Commission should consider, for example, UTC/EEI's recommendation that the 1800-1830 MHz band be made available for utility and CII operations.[28] Another example is Southern's recommendation that changes be made to the Commission's rules that would encourage public/private partnerships between public safety and utilities for infrastructure and operations in the 700 MHz D Block and the 4.9 GHz band.[29]

IV. SMART GRID SHOULD NOT BE VIEWED AS A "COMMERCIAL" SERVICE

As the Commission recognized in its *NOI*, broadband will play an essential role in the deployment and implementation of smart grid and other energy efficiency technologies.[30] While Entergy believes that relationships with commercial broadband providers will be an important aspect of smart grid deployment and operations, utilities cannot rely on commercial providers for certain critical smart grid and communications needs due to issues such as security, reliability, traffic prioritization, and control of the utility communications system.

As commenters such as UTC/EEI, Southern, and API have explained, commercial networks are generally not designed or built to provide the levels of reliability, survivability,

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[27] / Electric Power Research Institute, Report to NIST on the Smart Grid Interoperability Standards Roadmap, June 17, 2009 at 94, available at http://www.nist.gov/smartgrid/InterimSmartGridRoadmapNISTRestructure.pdf (last accessed July 20, 2009).

[28] / Comments of UTC/EEI at 10 – 11.

[29] / Comments of Southern at 15 – 16.

[30] / *NOI* at ¶ 86.

availability, and coverage that are necessary to meet utility and CII communications needs, particularly during times of emergency.[31] As Motorola stated, "It is incorrect to assume that the broadband needs of [utility and CII] users will be adequately met by commercial mobile services providers, which cannot readily satisfy the unique coverage, service, or application requirements of enterprise businesses and critical infrastructure entities."[32]

In its initial comments, UTC/EEI explained that public communications networks become overloaded and can be unavailable during and in the aftermath of emergencies and natural disasters, which is when utility communications are most urgently needed.[33] Reliance on a third party commercial communications provider also means that a utility engaged in storm recovery must coordinate its efforts with yet another party – one which may not have the same priorities as the utility and may, in fact, depend on that utility to have power restored to its facilities.

The ability of a utility to control its communications system and network is also essential to ensuring the safe, reliable, and efficient provision of critical utility services. As UTC/EEI explained in their initial comments, utilities are subject to mandatory reliability and security requirements established and enforced by FERC and NERC.[34] Therefore, as UTC/EEI correctly noted, utilities "cannot afford to hand over the liability for their communications reliability to a third party."[35] According to UTC/EEI, if a third party's network "should not perform as needed (regardless of any service level agreement)," the utility stands ultimately liable and ultimately

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[31] / Comments of UTC/EEI at 8; Comments of Southern at 14; Comments of API at 5.

[32] / Comments of Motorola at 9.

[33] / Comments of UTC/EEI at 8.

[34] / *Id.* at 3 and 8.

[35] / *Id.* at 8 – 9, note 12.

answerable to regulators and to the communities they serve for any problems arising from the defective communications service.[36] Finally, as discussed below, reliance on a third party raises issues of fundamental cybersecurity.

For these reasons, the Commission should recognize in its national broadband plan that while commercial broadband services can be an important partner in smart grid deployment and operations, they may not be the most appropriate solution.

V. CYBERSECURITY

The Commission, like several other government agencies and bodies at both the federal and state level, has recognized that cybersecurity is an important issue and must be considered in the development of any national broadband plan. However, the issue of cybersecurity becomes a problem when multiple agencies and entities with overlapping jurisdictions – such as the FCC, FERC, the Nuclear Regulatory Commission, Congress, the White House, etc. – attempt to address it independently. Cybersecurity therefore needs to be coordinated at the federal level with the ultimate goal of producing one set of consistent standards.

Nevertheless, as it develops its national broadband plan, the Commission should give careful consideration to the cybersecurity issues that arise from the introduction of third parties, such as commercial service providers, into the communications systems relied on by utilities and other critical infrastructure industries. The use of a commercially-provided communications service effectively opens up new penetration points into a utility's communications system that further complicates effective monitoring and protection. Thus, the Commission must remain mindful of the risks inherent in adopting policies or recommendations that effectively compel entities with particular security needs – such as utilities, government agencies, financial

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[36] / *Id.*

institutions, hospitals and medical centers, etc. – to rely too heavily on third parties for their communications needs. This is yet another area where the Commission should coordinate its efforts with those of other federal agencies.

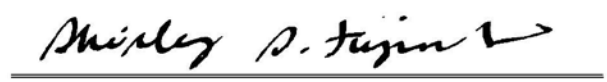
VI. CONCLUSION

As it develops its recommendations for the national broadband plan, the Commission should consider the needs of utilities and other critical infrastructure entities for access to sufficient, dedicated spectrum for the communications systems that support their critical operations and enable the provision of safe, reliable, and efficient electricity and energy services to the public. In particular, the Commission should: (i) maintain and protect existing spectrum allocations that utilities and CII rely on; and (ii) make additional dedicated spectrum available for utility and CII communications needs, including smart grid and other broadband applications that will be necessary to ensure the continuing safety, efficiency, and reliability of the nation's electric and other critical infrastructure.

WHEREFORE, THE PREMISES CONSIDERED, Entergy Services, Inc. respectfully requests the Commission to take action in this docket consistent with the views expressed herein.

Respectfully submitted,

ENTERGY SERVICES, INC.



Shirley S. Fujimoto
David D. Rines
McDERMOTT WILL & EMERY LLP
600 Thirteenth Street, N.W.
Washington, D.C. 20005-3096
T: 202.756.8000
F: 202.756.8087

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